

Freefall

Freefall.frm Freefall.vbp

Use Visual Basic 4.0 to start a New Project. Make sure the File (Form) is saved to the **desktop** with the filename **Freefall.frm**.

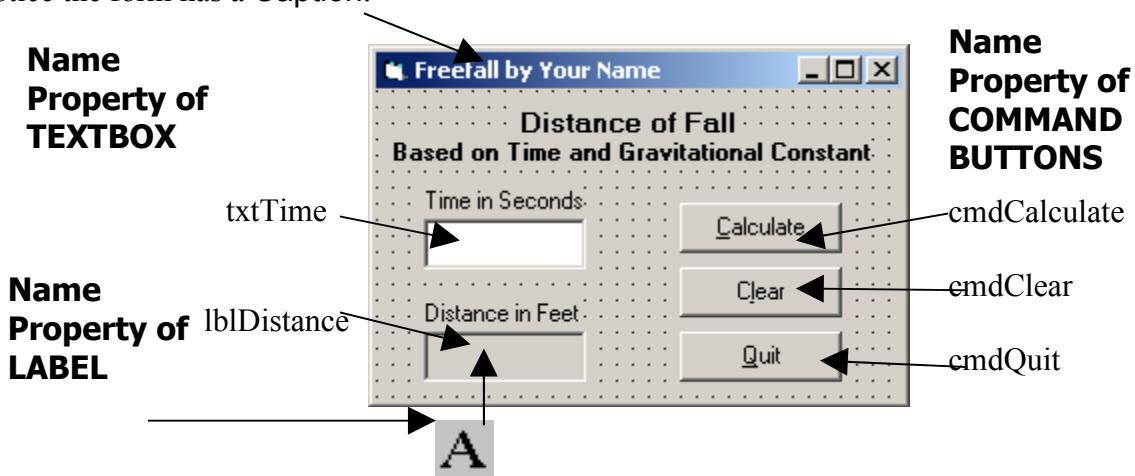
If you use a stopwatch to time how long it takes an object to fall to the ground when it is dropped, you can substitute this number into a formula to calculate the distance that the object fell. For example, if you started timing as soon as you saw an acorn fall from a tree, you could calculate how high above the ground the acorn was when it was on the tree.

You will create a form which allows the user to type the **time** in seconds in a **Textbox**.

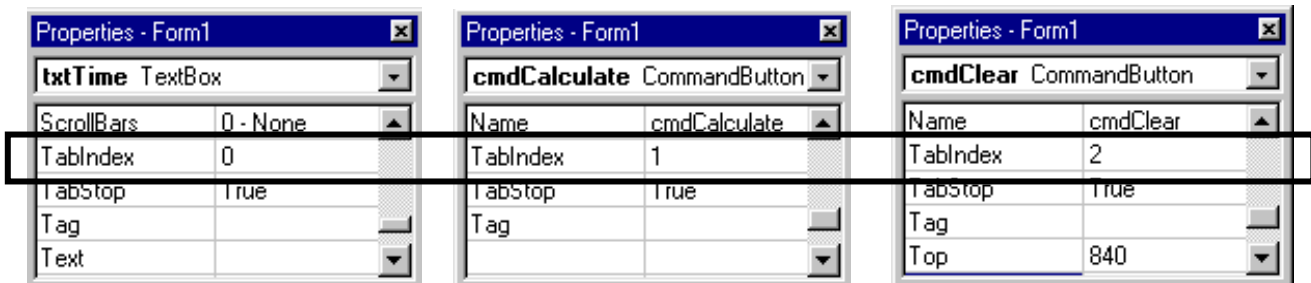
The **command buttons** will be used for the code. Use the **&** in the Caption to make the underline.

The resulting **distance** will be displayed in a **Label** with a **BorderStyle** of **1-Fixed Single**.

Notice the form has a Caption.



To make the tab order easy for the user, change the **TabIndex** Properties as shown here.



Remember to **AutoSize** the labels, Time in Seconds and Distance in Feet.

Double click on the Quit button to enter code to end the program.

```
Private Sub cmdQuit_Click()
End
End Sub
```

Freefall

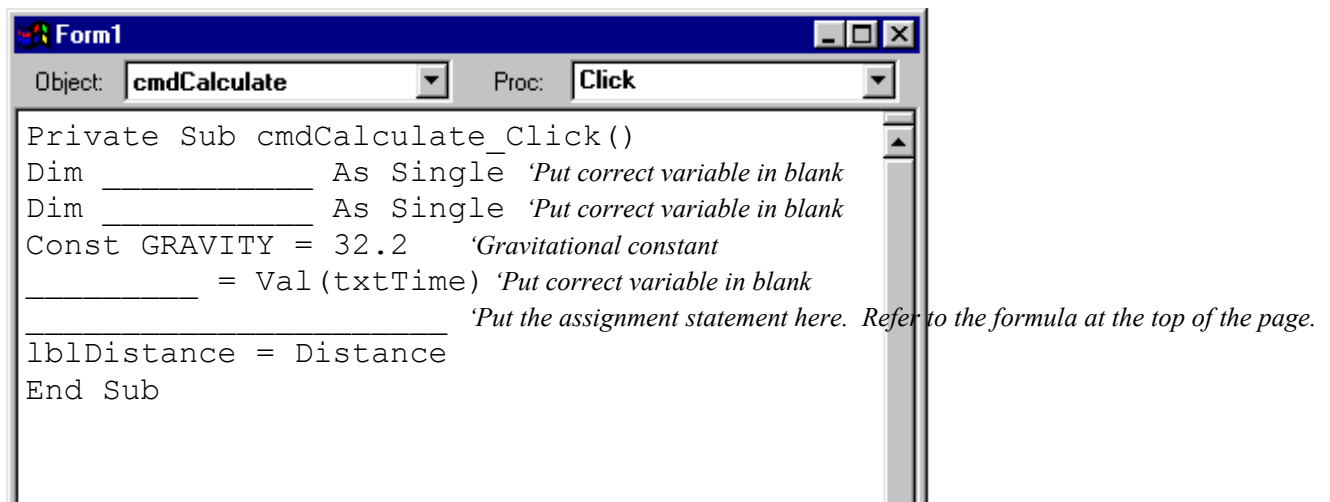
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The algebraic formula for the distance is

$$d = .5gt^2$$

where d stands for *distance* in feet,
 g stands for *gravity* in feet per second squared and
 t stands for *time* in seconds.

Double click on the **Calculate** button to enter the code. Fill in the blanks with the correct code.



Double click on the **Clear** button to enter code. Fill in the blanks with the correct code.

```
Private Sub cmdClear_Click()
txt_____ = ""
lbl_____ = ""
txt_____.SetFocus
End Sub
```

Use the test data pictured on the next page, to check your program.

When you run the program, **Tab** from object to object to check for user-friendly tab order.

Also test that the **C**lear button works. Try selecting **C**lear by using **Alt L**.

Also test the **Q**uit button.

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Freefall by Your Name

Distance of Fall
Based on Time and Gravitational Constant

Time in Seconds:

Distance in Feet:

Freefall by Your Name

Distance of Fall
Based on Time and Gravitational Constant

Time in Seconds:

Distance in Feet:

2.365E+07 is shown in exponential notation, which is the Visual BASIC way of writing the answer in scientific notation. In scientific notation 2.365E+07 would be 2.365×10^7

Notice that the **E** takes the place of the **x 10**

The user may put numbers in the textbox in exponential notation also. For example, if you wanted to use 4.1×10^2 you would type 4.1E2 or 4.1E+02

Freefall by Your Name

Distance of Fall
Based on Time and Gravitational Constant

Time in Seconds:

Distance in Feet:

Freefall by Your Name

Distance of Fall
Based on Time and Gravitational Constant

Time in Seconds:

Distance in Feet:

Freefall by Your Name

Distance of Fall
Based on Time and Gravitational Constant

Time in Seconds:

Distance in Feet:

Freefall by Your Name

Distance of Fall
Based on Time and Gravitational Constant

Time in Seconds:

Distance in Feet:

Would it make sense to use a negative number for the time? No, but we get an answer anyway.

In the near future, we will be making adjustments for users entering bad data, like these examples.

Freefall

Time in Seconds:

Distance in Feet:

Freefall

Time in Seconds:

Distance in Feet: